

Misconceptions put women off STEM subjects, suggests study

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Young women seem to be less drawn to degrees in science or technology. But what is putting them off? A sociological study at UZH has revealed that outdated gender stereotypes—such as supposed

differences in analytical thinking—play a major role.

Why do so few female school leavers with good grades in mathematics choose to study a technical subject—despite the high salaries and good employment prospects in the STEM sector? This question has long preoccupied the social sciences, especially as studies show that girls and boys do equally well in mathematics at school.

It is possible that socially embedded [gender stereotypes](#) play a role, such as: men think logically and in abstract terms, women are more creative; men should be the breadwinners, women take care of the family; men are competitive, women are more risk-averse. A study by Benita Combet from the Department of Sociology at the University of Zurich has now shown that some of these ingrained beliefs do indeed influence people's subject choices.

Considering factors in isolation

Until now, researchers have struggled to conclusively answer the question of motives. "The problem is that many of these field of study characteristics are simultaneously present," says study author Combet. For example, most STEM subjects involve a lot of math, require an affinity for technology, and can lead to high salaries, with part-time work in these fields (still) being rather rare. But how do we know which of these considerations is the deciding factor for or against a subject for [prospective students](#)?

Combet chose a new approach for her study: instead of asking the participants about their interest in real subjects such as mathematics or psychology, she presented them with hypothetical fields of study that differed in specific ways—for example, in terms of the possibility of part-time work or the requirements for [analytical thinking](#) and emotional intelligence. This enabled her to separate out the various factors in her

analysis. About 1,500 Swiss high school students took part in the survey.

Old habits die hard

"Surprisingly, the [male students](#) were influenced by two factors only: their preference for mathematics, and materialistic values such as salary and prestige," says Combet. The other factors seemed to be irrelevant for the young men. For [young women](#), the picture was completely different: they were averse to subjects that required analytical rather than [creative thinking](#) and that demanded little in the way of social and emotional skills in everyday work.

They also showed a preference for less competitive fields with the possibility of part-time work. Contrary to expectations, however, they were attracted to occupations with high salaries and prestige, just like the men.

"Especially with regard to factors such as logical thinking style and [technical skills](#), strong gender stereotypes still exist, which obviously significantly influence the decisions of female high school students," says Combet. "We should therefore continue to work on challenging and questioning these fixed beliefs." With regard to analytical thinking, for example, it has by no means been scientifically proven that there are differences between men and women. Moreover, the ability to think analytically is a basic requirement for almost every subject area.

Combet also believes schoolchildren should be given better and more detailed information about future subject choices: "Many of their current perceptions are not accurate." For example, many believe that to be good at engineering, all you need is an affinity for technology. In fact, says Combet, "interpersonal and creative skills are also important in engineering, for example working in a team to develop new products."

The study is published in the journal *European Sociological Review*.

More information: Benita Combet, Women's aversion to majors that (seemingly) require systemizing skills causes gendered field of study choice, *European Sociological Review* (2023). [DOI: 10.1093/esr/jcad021](https://doi.org/10.1093/esr/jcad021)

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